

WHAT IS CLAIMED IS:

1 1. A method for provisioning services to packets sourced  
2 from a number of client devices, each of the packets having  
3 at least a part of a layer 2 header replaced with a unique  
4 bit string, the method comprising:

- 5 a) determining whether or not the packet is entitled  
6 to access a particular service based on at least a  
7 portion of at least one of (a) a layer 3 address of  
8 the packet, and (b) the unique bit string; and  
9 b) if it is determined that the packet is entitled to  
10 access the particular service, then routing the  
11 packet.

1 2. The method of claim 1 wherein at least a portion of the  
2 unique bit string represents one of a number of logical  
3 interfaces.

1 3. The method of claim 1 wherein at least a portion of the  
2 unique bit string corresponds to a VPN-OUI.

1 4. The method of claim 1 wherein at least a portion of the  
2 unique bit string corresponds to a VPN-INDEX.

1 5. A method for providing various quality of service  
2 levels to packets sourced from a number of client devices,  
3 each of the packets having at least a part of a layer 2  
4 header replaced with a unique bit string, the method  
5 comprising:

- 6 a) determining a service level to which the packet is  
7 entitled based on at least a portion of at least one

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8 of (a) a layer 3 address of the packet, and (b) the  
9 unique bit string; and  
10 b) forwarding the packet to a queue associated with  
11 the service level determined.

1 6. The method of claim 5 wherein at least a portion of the  
2 unique bit string represents one of a number of logical  
3 interfaces.

1 7. The method of claim 5 wherein at least a portion of the  
2 unique bit string corresponds to a VPN-OUI.

1 8. The method of claim 5 wherein at least a portion of the  
2 unique bit string corresponds to a VPN-INDEX.

1 9. A method for monitoring packets sourced from a group of  
2 client devices defining a subset of client devices, each of  
3 the packets having at least a part of a layer 2 header  
4 replaced with a unique bit string, the method comprising:

- 5 a) determining whether or not the packet belongs to
- 6 the group of client devices based on at least a
- 7 portion of at least one of (a) a layer 3 address of
- 8 the packet, and (b) the unique bit string; and
- 9 b) if it is determined that the packet does belong to
- 10 the group of client devices, then
- 11 i) copying the packet to generate a duplicate
- 12 packet, and
- 13 ii) forwarding the duplicate packet to a
- 14 monitoring facility.

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1 10. The method of claim 9 wherein at least a portion of  
2 the unique bit string represents one of a number of logical  
3 interfaces.

1 11. The method of claim 9 wherein at least a portion of  
2 the unique bit string corresponds to a VPN-OUI.

1 12. The method of claim 9 wherein at least a portion of  
2 the unique bit string corresponds to a VPN-INDEX.

1 13. An apparatus for provisioning services to packets  
2 sourced from a number of client devices, each of the  
3 packets having at least a part of a layer 2 header replaced  
4 with a unique bit string, the apparatus comprising:

5 a) an access control list; and

6 b) an access controller, the access controller  
7 including

8 i) means for determining whether or not the  
9 packet is entitled to access a particular service  
10 based on

11 A) contents of the access control list, and

12 B) at least a portion of at least one of

13 (a) a layer 3 address of the packet, and (b)

14 the unique bit string, and

15 ii) means for routing the packet if it is  
16 determined that the packet is entitled to access  
17 the particular service.

1 14. An apparatus for providing various service levels to  
2 packets sourced from a number of client devices, each of  
3 the packets having at least a part of a layer 2 header

4 replaced with a unique bit string, the apparatus  
5 comprising:

- 6 a) a plurality of queues, each of the plurality of
- 7 queues associated with a particular service level;
- 8 b) a service level list; and
- 9 c) a service level controller, the service level
- 10 controller including
  - 11 i) means for determining a service level to
  - 12 which the packet is entitled based on
    - 13 A) contents of the service level list, and
    - 14 B) at least a portion of at least one of
    - 15 (a) a layer 3 address of the packet, and (b)
    - 16 the unique bit string, and
  - 17 ii) means for forwarding the packet to the one
  - 18 of the plurality of queues associated with the
  - 19 quality of service level determined.

1 15. An apparatus for monitoring packets sourced from a  
2 group of client devices defining a subset of client  
3 devices, each of the packets having at least a part of a  
4 layer 2 header replaced with a unique bit string, the  
5 apparatus comprising:

- 6 a) a monitoring port for accepting packets of the
- 7 group of client devices to be monitored;
- 8 b) means determining whether or not an accepted
- 9 packet belongs to the group of client devices based on
- 10 at least a portion of at least one of (a) a layer 3
- 11 address of the packet, and (b) the unique bit string;
- 12 and
- 13 c) means for
  - 14 i) copying the accepted packet to generate a
  - 15 ~~duplicate packet, and~~

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ii) forwarding the duplicate packet to the  
monitoring port,  
if it is determined that the packet was sourced by a  
client device belonging to the group of client  
devices.

add A5 }  
add B4 }  
add D1 }  
add E1 }

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